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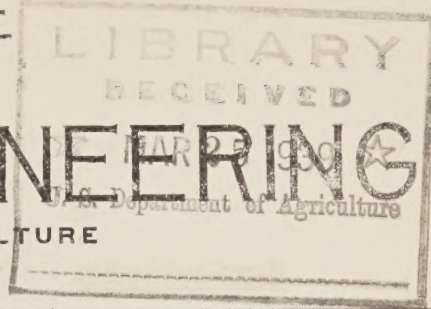
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CURRENT LITERATURE
IN

AGRICULTURAL ENGINEERING

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ENGINEERING



Vol. 8, No. 8.

WASHINGTON, D. C.

March 1939.

Agricultural Engineering.

McCrory's report stresses care in harvesting and storing crops.
Better farm equipment and methods. v.11,no.6. February,
1939. p.4-5.

McCrory's report stresses care in harvesting and storing crops.
Farm machinery and equipment. No.1862. February, 1939.
p.14.

III ème Congrès international du genie rural, Rome, 20-23 Septembre,
1939. Bulletin n.1. Rome, Italy, Federation internationale des
techniciens agronomes, 1939. 26p. Program of 3rd International
agricultural engineering congress.

Agriculture.

Agricultural relief measures relating to the raising of farm prices -
75th Congress, January 5, 1937 to June 16, 1938. Compiled by
M. E. Wheeler and M. I. Herb. Washington, D. C., 1939. 109p.
Mimeographed. U.S. Bureau of agricultural economics. Bibli-
ography no.76.

Fifty-first annual report of the South Carolina experiment station of
Clemson agricultural college for the year ended June 30, 1938.
Clemson, S.C., 1938. 199p.

Fifty-seventh annual report for the fiscal year ended June 30, 1938.
By P.J. Parrott. Geneva, N.Y., New York State agricultural
experiment station, 1939. 44p.

Fifty years of service to Kansas agriculture, 1888-1938. Manhattan,
Kansas. Kansas state college of agriculture and applied science.
Agricultural experiment station, 1939. 26p.

Outline of the 1939 agricultural conservation program in Connecticut.
Washington, U.S. Govt.print.off., 1939. 7p. U.S. Department
of agriculture. Agricultural adjustment administration.
Northeast division. NER-310-Conn.

Outline of the 1939 agricultural conservation program in Maine.
Washington, U.S. Govt.print.off., 1939. 8p. U.S. Department
of agriculture. Agricultural adjustment administration. Northeast
division. NER-310-Maine.

Agriculture. (Cont'd)

Outline of the 1939 agricultural conservation program in Massachusetts. U.S. Department of agriculture. Agricultural adjustment administration. Northeast division. Mass.-NER-310. Washington, D. C., 1939. 7p.

Outline of the 1939 agricultural conservation program in New Hampshire. Washington, U.S. Govt.print.off., 1939. 7p. U.S. Department of agriculture. Agricultural adjustment administration. Northeast division. NER-310-N.H.

Outline of the 1939 agricultural conservation program in New Jersey. Washington, U.S. Govt.print.off., 1939. 7p. U.S. Department of agriculture. Agricultural adjustment administration. Northeast division. NER-310-N.J.

Outline of the 1939 agricultural conservation program in New York. Washington, U.S. Govt.print.off., 1939. 8p. U.S. Department of agriculture. Agricultural adjustment administration. Northeast division. NER-310-N.Y.

Outline of the 1939 agricultural conservation program in Pennsylvania. Washington, U.S. Govt.print.off., 1939. 8p. U.S. Department of agriculture. Agricultural adjustment administration. Northeast division. NER-310-Pa.

Outline of the 1939 agricultural conservation program in Rhode Island. Washington, U.S. Govt.print.off., 1939. 8p. U.S. Department of agriculture. Agricultural adjustment administration. Northeast division. NER-310-R.I.

Outline of the 1939 agricultural conservation program in Vermont. Washington, U.S. Govt.print.off., 1939. 6p. U.S. Department of agriculture. Agricultural adjustment administration. Northeast division. NER-310-Vt.

Participation under A.A.A. program, 1933-35. Washington, U.S. Govt. print.off., 1938. 33p. U.S. Department of agriculture. Agricultural adjustment administration. G-91. Report of a study made to determine the extent of farmer participation in the original agricultural adjustment program according to commodities, type of farm tenure, and size of benefit payments.

Science serving agriculture. Report of Agricultural experiment station, Oklahoma A. & M. college, for July 1, 1936 to June 30, 1938. Stillwater, Okla., 1939. 231p.

Air Conditioning.

Air conditioning. By C.A. Fuller and David Snow. New York, Norman W. Henley, 1938. 577p.

Air Conditioning. (Cont'd).

Simple air conditioning system for bulbs, crops, hens and chicks.

By J. C. Scott. Electricity on the farm. v.12,no.2.
February, 1939. p.12-13,15. Western farmers find electric
ventilation heating and cooling effective for curing tulip bulbs and
for heating and conditioning hen and chick batteries.

Alcohol Fuel.

Chemical foundation has invested more than \$600,000 in 'Alky-Gas'.

National petroleum news. v.30,no.49. December 7, 1938.
p.15. Operations of Atchison Agrol Co. of Atchison, Kans.,
in making power alcohol which is being sold at some points in
middle west for blending with gasoline into "alky-gas" motor fuel,
have proved a costly experiment to The Chemical Foundation, Inc.,
according to its latest financial report.

Brooders, Electric.

Where we stand on electric brooding. By I. P. Blauser. Electricity
on the farm. v.12,no.1. January, 1939. p.7-9.

Costs of brooding--types of brooders--advantages and disadvantages
of electric heat--brooding at low temperatures--kind of brooder to
buy.

Building, Construction.

Masonry construction. By S. B. Hamilton. Structural engineer.

v.17.(New series),no.1. January, 1939. p.42-60.
Gives history.

Portfolio of architectural plates of Douglas fir plywood paneling.

By Carl F. Gould. American builder. v.61,no.2. February,
1939. p.74-75. Intended as suggestions to builder and
architect as possible ways of using Douglas fir plywood for walls
and equipment items in modern shop design.

What is TruCost estimating? By A. W. Holt. American builder.

v.61,no.2. February, 1939. p.62-66,108. Basic data
re-explained.

Wood buildings made stronger by timber connectors. Popular mechanics.

v.70,no.4. October, 1938. p.568. Use of connectors
also reduces sizes, and thus weight and cost, of members required
to carry given load. Made from malleable iron or sheet steel, con-
nectors come in various sizes and shapes. Spiked grid connector,
shaped in form of grid, has sixteen sharp spikes projecting from
each face. It is placed between timbers to be connected and is
embedded in wood by high pressure to such an extent that grid is
not visible when joint has been completed, virtually making joined
timbers as strong as if in one piece. Pressure can be applied by
means of special bolt and wrench arrangement or by hydraulic jack.

Building, Materials.

Ancient mud bricks better than modern baked ones. Science news letter. v.34,no.22. November 26, 1938. p.344.
Mud bricks mixed with straw, such as have been used for thousands of years in Egypt and Mesopotamia, have been proven superior to modern baked bricks as heat insulators, it is reported by M. K. Nahas and F. H. Constable of the Heat transmission research laboratory at Giza, Egypt. It was found in tests that bricks with normal straw content transmitted less than half as much heat as did similar bricks with minimum straw.

Boards from fiber. By Philip H. Smith. Scientific american. v.159,no.3. September, 1938. p.122-124. It has been given qualities in wide variety of combinations to serve specific purposes. Strength, resistance to moisture and to fire, insulating and acoustical properties, have been built-in.

Chemistry, Technical.

Bacteria turn wood sugars into valuable chemicals. Science news letter. v.34,no.24. December 10, 1938. p.375.
Chemists at University of Wisconsin are now using bacteria to turn sugar, made from wood, into valuable chemicals. Butyl and ethyl alcohol, acetone and isopropyl alcohol are among chemicals which have been produced experimentally by fermentation of wood sugars.

Condensation.

Condensation of moisture and its relation to building construction and operation. By F. B. Rowley and others. Heating, piping and air conditioning. v.11,no.1. January, 1939. p.41-49.
Investigation covering causes of condensation, extent of problem, its effect on building construction, and proper remedies to be applied has been in progress at University of Minnesota, Engineering experiment station, for past two years. Report describing test set-up and some preliminary results was given at Annual meeting of society in January 1938. Several phases of problem have been solved, but as some of them are inter-related problem requires additional study. This paper, therefore, must be considered as second progress report.

Eliminating dampness in old brick walls. By Horace L. Woodward. American builder. v.61,no.2. February, 1939. p.79,110.

Corrosion.

Deterioration of structures in sea water. Indian engineering. v.105,no.1. January, 1939. p.22-24.

Underground corrosion of pipe. By K. H. Logan. Chemical and metallurgical engineering. v.45,no.8. August, 1938. p.422-425.
Corrosion of pipe, tanks and other equipment

Corrosion. (Cont'd).

buried beneath the ground near chemical plants is a common trouble. Identification of the causes of corrosion are discussed and several effective remedies are offered.

Cotton Gins and Ginning.

Fan and piping tests at the United States cotton ginning laboratory.

By Chas. A. Bennett and Thos. L. Baggette. Cotton ginners' journal. v.10,no.4. January, 1939. p.5-6;16,19.

Possibilities of benefiting cotton gin quality by cotton gin improvement. By Francis L. Gerdes. Cotton and cotton oil press. v.39,no.50. December 10, 1938. p.3-4,10-11. Discussion relates more specifically to problems, results and procedures associated with modernization of gins for better quality and efficiency of ginning.

Preliminary report cotton gin survey. By T. R. Thomas. Cotton ginners' journal. v.10,no.5. February, 1939. p.9,11-13. Dust, lighting and accident hazards.

Preventing gin damage to cotton. By Francis L. Gerdes and Chas. A. Bennett. Cotton ginners' journal. v.10,no.5. February, 1939. p.7,10,18-19.

Report on cost of ginning ready for distribution. By W. E. Paulson. Cotton ginners' journal. v.10,no.3. December, 1938. p.9-10.

Cotton Machinery.

Comparison of one-row horse-drawn combination cotton planters and fertilizer distributors. By C. S. Patrick, G. B. Nutt, and others. In Fifty-first annual report of the South Carolina experiment station of Clemson agricultural college for the year ended June 30, 1938. Clemson, S.C., 1938. p.90-94.

Cotton picker does job of seventy-five men. Popular mechanics. v.70,no.4. October, 1938. p.513.

Overhead cleaning-drying systems for seed cotton. By Chas. A. Bennett and Chas. S. Shaw. Cotton ginners' journal. v.10,no.3. December, 1938. p.5-6,19. Various types of drying apparatus have been built and tested at United States cotton-ginning laboratories during past five years in effort to meet requirements of gins having only one to three stands. Conclusion from these tests is that seed cotton can be dried effectively and economically by introducing heated air either into suction line entering overhead air-line cleaner, or into overhead out-of-the-air cleaner. Air-line cleaner-drier, within certain limitations, has proved satisfactory under test and meets requirements of Government process. It and some of methods of applying hot air to out-of-the-air cleaners are described in this publication.

Dams.

Green Mountain Dam, Colorado-Big Thompson Project, Colorado.
Reclamation era. v.28,no.12. December, 1938. p.255.
Highest and largest of reclamation earth-fill dams.

Pensacola dam gets under way. By W. R. Holway. Engineering
news-record. v.122,no.7. February 16, 1939. p.64-66.
Work has begun on a combination power and flood control dam on
the Grand River at Pensacola, Okla. It is to be a multiple-arch
structure 152 ft. high flanked by a long concrete spillway and
non-overflow sections. A power house is to be built in the river
channel below the dam. Included in the work is a considerable
amount of highway and railway location. Principal details of
structures are given as are main contracts let to date.

Shasta dam. Scientific american. v.159,no.1. July, 1938.
p.23. Will be world's second highest. Primary function--
to conserve and regulate water resources of Sacramento River
valley. 560 feet high.

Diesel Engines.

Diesel tractor engines. By A. C. Jacquot. Pullman, Wash., 1939.
28p. State college of Washington, Agricultural experiment
station. Popular bulletin no.156.

Early days of the Diesel. By Henri H. Dubourg. Power.
v.83,no.3. March, 1939. p.58-59.

New developments in high speed Diesels. By P. M. Heldt. Auto-
motive industries. v.79,no.22. November 26, 1938.
p.698-705. Part two.

Drainage.

Explosives in drainage work and some suggestions on modified pro-
cedures to reduce the present cost. By L. F. Livingston.
Agricultural news letter. v.7,no.2. February, 1939.
p.30-32. Gives pertinent facts on properties of explosives
and their use in ditching operations, and offers suggestions on
methods to keep down the cost of dynamite for drainage work.

Land drainage works carried out by the River Crossens Catchment and
Internal Drainage Boards. By A. E. Jackson. Journal of the
Ministry of agriculture. v.45,no.9. December, 1938.
p.923-931.

Sub-surface drainage tested for terraces. In Science serving agri-
culture. Report of Agricultural experiment station, Oklahoma
A. & M. College for July 1, 1936 to June 30, 1938. Stillwater,
Okla., 1939. p.149-150.

Drying (Crops).

Artificial drying of farm crops in the United States; selected bibliography. Compiled by D.W. Graf. Washington, U.S. Bureau of agricultural engineering, 1938. 46p. Mimeographed.

Electricity - Distribution.

Electric light and power industry in 1938. By C. W. Kellogg. Edison electric institute bulletin. v.7,no.1. January, 1939. p.1-3. Gives statistics.

Electricity on the Farm.

Electrical equipment now designed for farm use. By Paul L. Reed. Ohio farmer. v.182,no.5. August 27, 1938. p.6,25.

Electricity on farms. By R. Borlase Matthews. Rural electrification and electro-farming. v.14,no.164. January, 1939. p.152-153.

Fourteenth annual progress report of investigations of the various uses of electricity for agriculture in the state of Washington. By L. J. Smith and H. L. Garver. n.p., Washington committee on the relation of electricity to agriculture, 1938. 29p. Mimeographed.

Rural electrification and its effects on industry. By George D. Munger. Rural electrification. v.4,no.4. December, 1938. p.8-9,29.

Rural electrification job of Consumers Power Company. Edison electric institute bulletin. v.6,no.11. November, 1938. p.481-485.

We are happy about the whole thing. By Ruth Beard. Electricity on the farm. v.12,no.2. February, 1939. p.10-11. Demonstration farms in Northern Illinois really demonstrative. Costs, savings, conveniences, and greater pleasure from living all prove electricity a good investment. Table gives current consumption of various appliances on electrified farms.

Engineering.

Engineering's part in the development of civilization. By Dugald C. Jackson. Mechanical engineering. v.60,no.7. July, 1938. p.529-534.

Engineering's part in the development of civilization. By Dugald C. Jackson. Mechanical engineering. v.60,no.12. December, 1938. p.949-953. VI.--Present relations and future outlook for civilization in an engineering world.

Engineering. (Cont'd).

Problems before the engineering profession. By A. A. Potter.
Mechanical engineering. v.60,no.7. July, 1938.
p.560-561,571.

Rôle of the engineering library: what should it contain and how
should it be used? By Harrison W. Craver. Mechanical engi-
neering. v.60,no.7. July, 1938. p.550-552.

Erosion Control.

Erosion and related land use conditions on the Elm creek watershed,
Texas. By Harvey Oakes and Elias Somerville. Washington, D.C.,
U.S. Department of agriculture, 1939. 20p.

Problem of soil erosion in the British Empire with special reference
to India. By R. Maclagan Gorrie. Indian engineering.
v.104,no.5. November, 1938. p.156-161.

Problem of soil erosion in the British Empire with special reference
to India. By R. Maclagan Gorrie. Indian engineering.
v.104,no.6. December, 1938. p.191,193-195.

Soil erosion and conservation in the United States. Engineering.
v.147,no.3809. January 13, 1939. p.31-33.

Tree planting around dams and dugouts. By Norman Ross. Ottawa,
1938. 9p. Dominion of Canada. Department of agriculture.
Circular 134.

Farm Machinery - Housing.

Winter protection for farm machinery pays. By E. N. Humphrey.
Farm machinery and equipment. No.1862. February, 1939.
p.27.

Farm Machinery and Equipment.

Census Bureau's special report on tractors, threshers and combines.
Farm implement news. v.60,no.3. February 9, 1939.
p.20-21. Table issued by U.S. Bureau of Census giving
data on production and sales of tractors, threshers and combines
in 1938 is reproduced. 1938 statistics are preliminary and sub-
ject to such correction as may be found necessary after further
examination of returns. Total tractor figures of two years are
not strictly comparable, because 1938 data on garden tractors
are not yet available.

Demonstrating the "catchpole" sugar beet harvester. Implement
and machinery review. v.64,no.765. January 1, 1939.
p.905-906.

Farm Machinery and Equipment. (Cont'd).

Fewer tractors but more combines in 1938. Implement and tractor.
v.54,no.3. February 4, 1939. p.16-17. Table gives
manufacture and sale of tractors, combines, and grain threshers,
1938 and 1937.

Hybrid corn speeds power picking. Prairie farmer. v.110,no.17.
August 13, 1938. p.12,23.

M-M offers new tractor plow line. Implement and tractor.
v.54,no.4. February 18, 1939. p.18,30.

Machine makers help hybrid growers. Prairie farmer. v.110,no.17.
August 13, 1938. p.12,16,20. Discusses planters.

Manufacture and sale of tractors combines and grain threshers.
Farm machinery and equipment. No.1862. February, 1939.
p.8. Use of rubber tires increases despite drop in
total tractor production.

Manufacture and sale of tractors combines and grain threshers, 1938
and 1937. Better farm equipment and methods. v.11,no.6.
February, 1939. p.6-7. Preliminary census report.

New harvester for spinach. Market growers journal. v.64,no.2.
January 15, 1939. p.40. Saves 50 to 75 per cent over
hand cutting cost. Cuts two rows at a time, above ground and
at plowing speed.

Previews of 1939's farm machinery. By J. Brownlee Davidson.
Successful farming. v.37,no.2. February, 1939.
p.10-11.

Farm Power.

Labor efficiency and power economy in corn production. By J. Brownlee
Davidson. Farm implement news. v.60,no.4. February 23,
1939. p.46-48. Paper intended to be a review of engin-
eering aspects of production of corn. Principal matters to be
considered will be labor efficiency, power economy and expenditures
for farm machinery.

Relative cost of labor and power in planting and cultivating corn
when the size of the power unit varies. By C. S. Patrick.
In Fifty-first annual report of the South Carolina experiment
station of Clemson agricultural college for the year ended
June 30, 1938. Clemson, S.C., 1938. p.89-90.

Fences, Electric.

Effects of electric fence on various animals compared. By L. E. Hazen.
In Science serving agriculture. Report of Agricultural experiment station, Oklahoma A. & M. College for July 1, 1936 to June 30, 1938. Stillwater, Okla., 1939. p.150-151.

Fertilizer Placement.

Exact placement of seed and fertilizer in one operation. Arizona producer. v.17,no.17. November 15, 1938. p.7.

Fertilizer placement. By M. E. McCollam. California cultivator. v.85,no.27. December 31, 1938. p.783,786.

Side placement of fertilizer pays dividends: tests show that average yields increase with side applications. By Donald L. Robertson. The furrow. v.44. January-February, 1939. p.4,12.

Fertilizers.

Fertilizer and rotation data being sought in new project. In Science serving agriculture. Report of Agricultural experiment station, Oklahoma A. & M. College for July 1, 1936 to June 30, 1938. Stillwater, Okla., 1939. p.111.

Fertilizer investigations. In Fifty-seventh annual report for the fiscal year ended June 30, 1938. By P. J. Parrott. Geneva, N.Y., New York State agricultural experiment station. 1939. p.33-34.

Fire Protection.

Supplying long lines for fighting rural fires. Volunteer firemen. v.6,no.1. January, 1939. p.6-7. Table gives approximate friction loss and discharge with one mile of 2-1/2-inch hose.

Floods and Flood Control.

Flood routing: discussion. By Edward J. Rutter and others. Proceedings. American society of civil engineers. v.65,no.2. February, 1939. p.283-287.

Floors.

Structural properties of one of the "Keystone beam steel floor" constructions sponsored by the H. H. Robertson company. By H. L. Whittemore, and others. Washington, U.S. Govt.print.off., 1939. 8p. U.S. National Bureau of Standards. Building materials and structures. Report BMS 10.

Flow of Air.

New charts for figuring friction loss in piping. By E. A. Windham.
Heating, piping and air conditioning. v.11,no.1. January,
1939. p.6-8.

Flow of Water.

Entrainment of air in swiftly flowing water. By E. W. Lane. Civil
engineering. v.9,no.2. February, 1939. p.89-91.

Air entrainment in swiftly flowing water may upset most careful
computations of stilling-basin or chute capacity, by reducing
velocity of flow and increasing the volume of water. Few quantita-
tive data on phenomenon are available.

Resistance to flow through nests of tubes. By R. Pendennis Wallis and
C. M. White. Engineering. v.146,no.3802. November 25,
1938. p.605-607.

Resistance to flow through nests of tubes. By R. Pendennis Wallis
and C. M. White. Engineering. v.146,no.3804. December 9,
1938. p.665-666.

Resistance to flow through nests of tubes. By R. Pendennis Wallis
and C. M. White. Engineering. v.146,no.3806. December 23,
1938. p.723-725.

Water control in open channels. By J. W. Lewis. Indian engineering.
v.104,no.4. October, 1938. p.135-136. Developments
in roller sluices.

Flumes.

Laboratory investigation of flume traction and transportation: dis-
cussion. By Hunter Rouse. Proceedings. American society of
civil engineers. v.65,no.2. February, 1939. p.291-296.

Fuels.

Combustion, flames and explosions of gases. By Bernard Lewis and
Guenther von Elbe. Cambridge, University press, 1938. 415p.

Fuel research: editorial. Engineering. v.146,no.3807.
December 30, 1938. p.765-766.

Knock-testing--in the laboratory and in service. By Graham Edgar.
S.A.E. journal. v.43,no.3. September, 1938. p.7-12,17-19.
Exact correlation between laboratory methods of knock-testing and
service results is hardly to be expected on theoretical grounds.
Problem of "average road knock-ratings" calls loudly for statisti-
cal study, author contends, pointing out that no really sound
statistical basis has been worked out. Because of extraordinary

Fuels. (Cont'd).

complexity of problem both in laboratory and in service, paper shows that much uncertainty attends interpretation of any individual service knock test. Paper discusses problem broadly, attempting to point out what is possible to achieve in solution of problem and what is not possible.

Propane, butane, and related fuels. By E. R. Weaver. Washington, U.S. Govt.print.off., 1938. 21p. U.S. National Bureau of Standards. Circular 420.

Sawdust practical as fuel for heating homes. Popular mechanics. v.70,no.4. October, 1938. p.512. Sawdust is being used in heating more than 15,000 homes, offices, theaters and other buildings in British Columbia. In cooperation with combustion engineers, forest products laboratories of Canadian department of mines and resources have devised methods of using sawdust as fuel and for storing it safely. As fuel, sawdust is clean, cheap, very low in ash content and light in weight. It burns freely, requires little attention and makes fire that is easily controlled. Sawdust requires auxiliary grate, but special furnaces are unnecessary. Grate is designed so that it may be attached to any standard heating unit. Fuel is fed as required by gravity from storage hopper placed above grate. Hopper is filled two or three times a day.

Heating.

American standard approval requirements for gas water heaters, effective January 1, 1939. New York, American gas association, 1938. 48p. Approved American standards association, October 31, 1938.

Electric heat practical for poultry houses. By Hobart Boresford. Electricity on the farm. v.12,no.1. January, 1939. p.13-14. Gives floor plan of laying house showing location of heater and ventilation outlets. Also plan for home-made heater.

Wasted heat in flue gases. By F. K. Ovitz and J. G. Nellis. Fuel oil journal. v.17,no.8. February, 1939. p.14-15, 28,30,32. Excess air and incomplete combustion are chief causes of losses.

Hotbeds, Electric.

"Brass tacks" on electric hotbeds. By Geo. W. Kable. Electricity on the farm. v.12,no.2. February, 1939. p.14-15.

Houses.

Steel frame houses. Architectural forum. v.69,no.1. July, 1938. p.18,20-22.

Houses, Remodeling.

It is easier today to modernize your home. Ohio farmer.
v.182,no.5. August 27, 1938. p.10-11,23.

Hydraulics.

Observed effects of geometric distortion in hydraulic models: discussion. By Herbert D. Vogel. Proceedings. American society of civil engineers. v.65,no.2. February, 1939. p.308-310.

Hydroponics.

Present trends in chemical gardening. By Carleton Ellis and Miller W. Swaney. Wilson bulletin for librarians. v.13,no.3. November, 1938. p.184-186.

Irrigation.

Irrigation important for strawberries. Report of Agricultural experiment station, Oklahoma A. & M. college, for July 1, 1936 to June 30, 1938. Stillwater, Okla., 1939. p.117-120.

An irrigator and some of his equipment. By C. L. Fitch. Market growers journal. v.64,no.3. February 1, 1939. p.60-62.

Electric power for irrigation in humid regions. Chicago, Ill., Committee on the relation of electricity to agriculture. C.R.E.A. bulletin. v.7,no.2. July, 1937. 23p.

Our new moveable sprinkler machines. By J. E. Christiansen. Pacific rural press. v.136,no.16. October 15, 1938. p.351,354. During spring and summer of 1938, four very interesting "sprinkler machines" were placed in operation to irrigate field crops in California. Three of these machines are designed to deliver water through two large part-circle rotating sprinklers, while traveling very slowly but continuously along ditch. Fourth machine distributes water to strip of ground by means of line of pipe suspended from machine which extends 100 feet to each side, and also moves along slowly. These take water from ditch as they go.

Plan irrigation to reduce wind injury. By Harold E. Wahlberg. California citrograph. v.24,no.1. November, 1938. p.11.

Replacement of calcium in soils by sodium from synthotic irrigation water. By G. S. Fraps and J. F. Fudge. Journal. American society of agronomy. v.30,no.10. October, 1938. p.789-796. Experiments in this paper were undertaken to secure further information concerning effect of different concentrations of sodium and calcium salts in irrigation waters upon exchangeable calcium in soil.

Irrigation. (Cont'd).

Spring and winter wheat varieties under irrigation. By E. J. Wellhausen. Bozeman, Mont., 1938. 35p. Montana state college. Agricultural experiment station. Bulletin 364.

Supplemental irrigation in the Eastern United States of America. By F. E. Staebner. Reprint from Transactions of the 6th Commission of the International society of soil science, Meeting in Zürich, 1937. Volume B, p.241-243.

Lubrication.

Lubrication in the field of contracting. Lubrication. v.25,no.1. January, 1939. p.1-12.

Smooth operation depends on proper lubrication of refrigerating equipment. By R. J. S. Piggott and Paul G. Exline. Southern power journal. v.57,no.2. February, 1939. p.53-56.

Malaria Control.

Malaria control for engineers: report of the joint committee of the National Malaria committee through its sub-committee on engineering and the Sanitary engineering division, A.S.C.E. Proceedings. American society of civil engineers. v.65,no.2. February, 1939. p.229-274.

Milk Cooling.

Mechanical milk cooling on farms. By J. R. McCalmont. Washington, U.S. Govt.print.off., 1938. 20p. U.S. Department of agriculture. Farmers' bulletin no.1818.

Motor Fuel.

1937 road knock tests: report from cooperative fuel research committee. By T. A. Boyd. S.A.E. Journal. v.42,no.6. June, 1938. p.244-252. Paper deals with road-test portion of extensive efforts made during 1937 by Cooperative fuel research committee to get as precise correlation as possible between laboratory knock ratings of automobile fuels and their corresponding ratings in cars on road. It is anticipated that comprehensive results of car tests reported here, taken together with results of laboratory rating program, will serve as basis of continuing studies aimed at developing best possible correlation between road and laboratory knock ratings. Work similar to that reported here has been conducted concurrently in England by Institution of petroleum technologists, using British cars and fuels. Exchange of information between British and American groups working on this problem is being made. This commendable cooperation is indicative of wide scope of these studies, and it is to

Motor Fuel. (Cont'd).

be hoped that, as outgrowth of this extensive cooperation, solution will be found for problem of making laboratory ratings of motor fuels agree with ratings in cars which will be so satisfactory as to be universally acceptable.

Proposed method of test for ignition quality of Diesel fuels.

S.A.E. Journal. v.43,no.5. November, 1938. p.453-454,
464,484. Method has been developed in Automotive Diesel
Fuels Division of Cooperative Fuels Research Committee.

Motors, Electric.

Electric drive of barn machinery. By J. H. Marlow. Rural electri-
fication and electro-farming. v.14,no.164. January, 1939.
p.146-147. Discussion of motors.

Electric motors for farm use. By Andrew Hustrulid. Implement
and tractor. v.53,no.24. November 26, 1938. p.11,18.

Nomenclature.

Glossary of chlorination terms. By Ellis K. Phelps. Public works.
v.69,no.12. December, 1938. p.14-16. Chemical terms,
professional designations and trade names are defined in this
glossary, and various types of equipment described.

Nylon.

Du Pont announces Nylon. Du Pont magazine. v.32,no.12.
Holiday number, 1938. p.1-2. Nylon is generic name
for all materials defined scientifically as synthetic fiber-
forming polymeric amides having protein-like chemical structure;
derivable from coal, air and water, or other substances, and
characterized by extreme toughness and strength and peculiar
ability to be formed into fibers and into various shapes.

Nylon--a discovery and invention unequalled since the viscose process.
By A. Tsimheh. Silk journal and rayon world. v.15,no.174.
November, 1938. p.18-21.

Orchard Heaters.

Orchard heater investigations. By H. B. Walker. California citro-
graph. v.24,no.1. November, 1938. p.3,20-22.
Summarizing situation in orchard heater development it may be
broadly stated: 1. That no new types of orchard heaters are yet
available at cost comparable to present commercial distilling
types which will be materially better than more modern existing
types when judged from smoke output standpoint. 2. Pour back
problem with distilling type heaters is still unsolved. 3. Heaters

Orchard Heaters. (Cont'd).

which show promise in solving smoke problem but which are almost certain to be higher in first cost are return gas distilling type and atomizing type of heaters. 4. Drip heaters which will operate successfully on poorer grades of orchard heater fuels have not yet been developed although drip heaters are available which perform satisfactorily with better than average quality fuels.

Power.

Eighteenth annual report of the Federal power commission, fiscal year ended June 30, 1938 with additional activities to December 1938. Washington, U.S. Govt.print.off., 1938. 74p.

Pumps and Pumping.

Use of steam power for irrigation pumping in India. Engineering. v.146,no.3807. December 30, 1938. p.768-769.

Rain-fall and Run-off.

Analysis of run-off characteristics: discussion. By Victor H. Cochrane and Bertram S. Barnes. Proceedings. American society of civil engineers. v.65,no.2. February, 1939. p.371-377.

Reclamation.

Farms for the Everglades. By R. G. Skerrett. Scientific American. v.158,no.6. June, 1938. p.325-327. Levees, drainage canals permit reclamation of mysterious Everglades. Soil is black and rich. Thousands of acres for new farms.

Refrigeration.

'Gas storage' and refrigeration lengthen storage life of fruits, tests show. Air conditioning and refrigeration news. v.25,no.17,serial no.510. December 28, 1938. p.5. Lists advantages: 1. Many varieties of apples are subject to low temperature troubles such as brown heart, internal browning, and brown core. 2. With some apple and pear varieties, temperatures as low as 34 degrees F. can be employed and storage life is very greatly lengthened. 3. Specific effect of carbon dioxide is to greatly retard normal green to yellow change in apples and pears. 4. Marked residual effect of storage is noticed in gas stored fruit. 5. Because of inhibitory effect of carbon dioxide on mold growth, somewhat higher humidities can be used in gas storage than in cold storage. Disadvantages: 1. Because of danger of suffocation and danger of loss of required atmospheric concentrations of carbon dioxide and oxygen, operators cannot enter gas chambers for inspection of fruit or manipulation

Refrigeration. (Cont'd).

of equipment. 2. It is difficult to construct buildings gas tight. 3. As has been stated, gas storage is not universally applicable to all fruits or all varieties of any one fruit. 4. Double effect of low temperatures plus atmospheric control cannot always be expected to give full theoretical benefit that might be anticipated.

Refrigerating data book. Menasha, Wisc., American society of refrigerating engineers, 1939. 134p. v.1. Refrigerating principles and machinery.

Refrigerator Lockers.

Cold storage locker plants, 1937-1938; short list of references. Compiled by C. L. Whitehorn. Washington, Library, U.S. Bureau of agricultural economics, 1938. 7p. Typewritten.

Survey of the locker plant industry proves hidden possibilities. By George Treat. Domestic commerce. v.23,no.2. January 20, 1939. p.30. Today farmers are renting only 73.6 percent of lockers in United States. Definite trend is toward urban rental of lockers. City people are now renting 26.4 percent of all lockers.

Research.

Agricultural research relating to canning crops: IV. Washington, D.C., National canners association, Bureau of raw products research, 1939. 24p. New publications of interest to Canners.

Growing importance of technical research. By J. E. Bullard. Rayon textile monthly. v.19,no.11. November, 1938. p.37-38.

"Research--a national resource" issued by National resources committee. Domestic commerce. v.23,no.4. February 10, 1939. p.77.

Research at the 1938 convention of the association of land-grant colleges and universities. Experiment station record. v.80,no.2. February, 1939. p.145-148.

Research now major industry. Farm machinery and equipment. No.1862. February, 1939. p.22. In recent years research laboratories have so multiplied that today research itself might be regarded as major industry. Accurate figures on total research personnel and expenditures are difficult to get. There are in United States more than 1500 industrial and consulting laboratories, employing some 23,000 workers. Last year's industrial research expenditures in excess of \$250,000,000. In steel industry alone, the 1937 appropriation for research was over \$10,000,000.

Research. (Cont'd).

Research now major industry. Better farm equipment and methods.
v.11,no.6. February, 1939. p.11.

Review of general research developments. By E. B. Benger. Rayon
textile monthly. v.19,no.10. October, 1938. p.30-32.
Magnitude of research within chemical industry is indicated by
fact that out of each \$100 of sales of organic chemicals in 1937,
\$4.30 was spent for research. Twenty million dollars is probably
conservative figure for amount of money spent last year for research
by chemical manufacturers. Money spent annually on research by du
Pont Company alone is of order of \$5,000,000.

Silk--Artificial.

Synthetic-silk fiber. U.S. Patent office. Mechanical engineering.
v.60,no.11. p.868. Based on newspaper reports, it is
believed that cost of materials used in fiber's preparation will
make it more costly than rayon. Whether it can compete with silk
in cost, depends on machinery and production plans developed by
engineers, especially mechanical engineers.

Silt.

Advance report on the Sedimentation survey of the Bennett irrigation
and silting basin Wilsoncreek, Washington, August 17 - October 17,
1936. By J.L. Hough and E.M. Flaxman. Washington, D.C., U.S.
Soil conservation service, 1938. 20p. Mimeographed.

Silt problem in Punjab canals. By N. Gopal. Indian engineering.
v.104,no.5. November, 1938. p.167-168.

Theory of silt transportation: discussion. By Glenn W. Holmes and
Hunter Rouse. Proceedings. American society of civil engineers.
v.65,no.2. February, 1939. p.303-307.

Transportation of sand and gravel in a four-inch pipe: discussion.
By R. L. Vaughn and others. Proceedings. American society of
civil engineers. v.65,no.2. February, 1939. p.316-328.

Soil Moisture.

Relation of soil moisture to fusarium wilt of cotton. By W. H. Tharp
and V. H. Young. Journal of agricultural research. v.58,no.1.
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paper have been directed toward determination of influence of rela-
tive soil moisture on incidence and severity of fusarium wilt
disease of cotton. Special attention has been given to study of
effect of relative soil moisture at constant soil temperatures.

Soil Sterilization, Electric.

Electric soil sterilizer for \$69.14. By M. S. Shoop. Electricity on the farm. v.12,no.1. January, 1939. p.10.
Kills plant disease spores, harmful insects and weed seeds. For plant growers, nurserymen and florists.

Soils.

Chemical composition of soil from cultivated land and from land abandoned to grass and weeds. By A. L. Prince and others. Soil science. v.46,no.5. November, 1938. p.379-389.

Soil characteristics summarized. By Arthur R. Smith. Earth mover and road builder. v.25,no.12. December, 1938. p.15,18-19.
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Tires.

Farming "On Rubber". By J. G. Kreyer. Better farm equipment and methods. v.11,no.6. February, 1939. p.12-13.
Special uses of agricultural tractor tires.

Field transport of cane on steel and rubber. By L. A. Tromp. London, British rubber publicity association, 1939. 32p.
Rubber and agriculture series. Bulletin no.9.

Pneumatic tires. By Ralph F. Wolf. The planter. v.19,no.11. November, 1938. p.539-543. Chronicle of interesting happenings in the early days of the casing industry.

Rubber and agriculture. London, British rubber publicity association, 1934. 64p.

They test tires. By Henry Espensen. Iowa agriculturist. v.39,no.6. January, 1939. p.15. Iowa State's agricultural engineers carry out comprehensive tests to determine efficiency and economy of rubber tires.

Which is better: steel or rubber? Implement record. v.36,no.1. January, 1939. p.18. Results of Firestone tests.

Tobacco.

Production of white burley tobacco. By E. J. Kinney. Lexington, Ky., 1939. 30p. University of Kentucky. College of agriculture. Extension division. Circular no.230 revised.

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Tests demonstrate field bindweed control. By Geo. M. Briggs.
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